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INTRODUCTION TO THE PROJECT SURVEILLANCE PLAN **This training introduces a new concept: an integrated Project Surveillance Plan generated by the project organization. This plan will penetrate to the very heart of whatever project that you are working on, but it changes the rules in some very important ways. Rather than having an external organization dictate a set of specific items that should be in a Project Surveillance Plan, the project organization itself establishes the plan and then executes it.** **This module will introduce the concepts of developing a strategy, coordinating activities, and developing measurement tools to support that strategy. This Project Surveillance Plan supports the goals of performance-based contracting in which NASA is asking contractors to take more responsibility for delivering products and services that meet specific requirements. NASA will move into the role of executing its responsibilities by conducting insight monitoring.** **Taking this course provides an introduction to the concepts related to the Project Surveillance Plan and performance-based contracting. It will allow students to start thinking critically about what should be included in their particular Project Surveillance Plan and how they will create that document to meet the needs of their project.**	**Slide #1**

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LESSON OVERVIEW **This slide presents an overview of what will be discussed today in this course of instruction. It is critical to understand the linkages between each of these parts because the Project Surveillance Plan is an integral part of any project. It provides guidance and instruction for how to conduct project surveillance while it is ongoing. As most everyone knows, there has been a radical downsizing in NASA. Restructuring, which requires new ways of doing business, requires developing new ways of thinking and new ways of conducting that business. Because of this downsizing and the introduction of new concepts, this module first introduces performance-based contracting - a major new driving force in the way that NASA is planning to do business. When implementing performance-based contracting, NASA describes what it wants in terms of what "it" does, when "it" is needed, and how much of "it" they want to buy and then rewards the contractor for how well it delivered what is specified. NASA will provide an opportunity for contractors to take on increased responsibility, develop the product, and deliver the required services. NASA will move from a mindset of oversight to one of monitoring for insight. NASA has decided that it is no longer acceptable to hire marching armies of contractors under the direct guidance and supervision of NASA senior engineers and Project Managers. Instead, NASA will tell contractors what the agency wants [by the statement of work (SOW) in the request for proposal (RFP)] and allow contractors to tell the agency how they propose to accomplish this request. The Project Surveillance Plan is a key link that ties the requirements to the final delivered product. By law and by principles of**	**Slide #2**

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good business sense, NASA will conduct insight surveillance to assure the agency has received what it requested at the time it was requested. The project-specific surveillance plan defines how NASA will accomplish that goal. **After reviewing the concepts and the basic contract types used in performance-based contracting, this module will review the structure of the Project Surveillance Plan. Specifically, it will examine the components of the Project Surveillance Plan and the types of information that should compose each of these parts. The compilation of parts provides the means to execute a very logical, integrated process that will allow the Project Manager to effectively monitor and manage the project. The following key points will be considered:** • **How does one develop a strategy?** • **What are some of the more effective strategies that might be employed to develop a surveillance program?** **Remember though, this plan is a description of how students will develop their surveillance program; the plan itself is not the program.** **The module also examines the concept of a surveillance strategy and how to form that strategy. The module will examine some alternative concepts for a strategy in context of the product being purchased, the contract type, and contractor past performance. It will discuss how to put together activities, what activities make sense within the context of the formulated strategy, and what surveillance**	**Slide #2 (continued)**

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activities make sense in terms of communication, verification, and overall auditing and monitoring of processes. The module discusses measurement tools that can be used to assess the contractor's progress toward completing the project, including tools that are already within the contractor's structure. Methods will be discussed to identify metrics that indicate progress on monitoring and managing the project. This is a joint team effort, and NASA does not take complete responsibility for all of these things. The contractor shares that responsibility, but similarly, the contractor can expect that NASA will use practical, common-sense business tools to monitor and manage its own progress in executing the project. The course will then proceed to look at the organization needed to conduct project surveillance. The organization requires a combination of partners that have "bought in" to the program. This partnership may include not only the contractor and direct NASA project staff, but also staff oversight functions within the NASA organization that provide matrix support to the project. Similarly, other outside Government agencies that also have a key part in surveillance will be discussed, including Defense Contract Management Center, Defense Logistics Agency, and other related Government agencies. This module will also broach the subject of resourcing to get this job done. In some agencies, surveillance programs become "other duties as assigned," but the focus must be on ensuring that the resources are available, that the people are in place and have been assigned a specific responsibility, and that they are held accountable for performance.	Slide # 2 (continued)

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Finally, the module will discuss how to assemble an organization to support the construction of this Project Surveillance Plan. This plan puts down on paper what people agree to do. The best people for this planning process are those people who will actually do the job. This section will identify the following: • **Development strategies and how to assemble a program staff** • **People who might be involved in PSP creation through various stages of development** • **Coordination steps and related items that are important to the organizational staff to ensure success of the plan and support of the overall objectives of the program**	**Slide # 2 (concluded)**
MODULE TRAINING OBJECTIVES **The objectives shown on this slide are fairly straightforward. The key point to understand is that the student will walk out of this presentation with an understanding of the technical content of the Project Surveillance Plan, an appreciation of the processes that are involved in creating it, and the importance of the team as a critical element of linking the Project Surveillance Plan into the performance-based contracting concept.**	**Slide #3**

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PERFORMANCE-BASED CONTRACTING WITHIN NASA **NASA is undergoing a revolution in the way it conducts its mission and operations. This revolution requires new ways of thinking and operating, ways that are quite unfamiliar to many of the staff. NASA is implementing a number of changes to its core strategies to meet the needs of the future. The 1996 Strategic Plan describes the nature of the changes. One key strategy claims that "we will change the way that we work with our contractors." In the past, NASA has positioned itself to oversee and be an integral part of the actual development process, deeply involved in the technical elements of creation and actually the operations of all elements of the space program. This is changing.** **Performance-based contracting makes certain that NASA obtains the products and services that it wants from a contract by providing tangible incentives for the contractor to perform in specific ways. It removes NASA from the oversight role and takes it more into a twice-removed supervisor role. This new role is similar to the Department of Defense (DOD) context of contracting. In DOD in recent years, many Project Managers and most project engineers moved from the actual on-floor creation process into Project Offices, practicing an insight role. As NASA moves into this environment, the basic business premise requires that the contract results in a mutual value for both partners. Many contractors will not necessarily move into this higher risk performance-based business realm unless they see an opportunity for themselves, more than just that of the immediate job at hand.**	**Slide #4**

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During this time of austerity, many of the immediate jobs at hand will be based on razor-thin margins for the contractor. NASA must sell the jobs to the contractors as a potential for future work, with potential commercialization and the lure of potential monopoly or first-person-into-the-marketplace types of market positions. The companies must truly benefit from the partnership with the Government and not be taken advantage of by the Government as it attempts to move its activities out of its own backyard and into the contractor's backyard.	**Slide #4 (concluded)**
PERFORMANCE-BASED CONTRACTING INSIGHTS **Performance-based contracting within NASA will require new processes to restructure the way the agency handles acquisition. In the past, acquisition was frequently based on purchasing the time and attendance of an army of contractors to provide on-call services as needed. NASA's intent is to move from paying and rewarding contractors for merely being there and doing their job. Instead, NASA is looking more towards the promise of performance-based contracting to improve the effectiveness of its investment.** **In order for NASA to prosecute this strategy, it must clearly identify the performance of the product that is being purchased as well as emphasize specific objective measurable performance elements and specific quality standards by which the contractor's work will be measured. Both the contractor and NASA must agree to these requirements during initial contract negotiations.**	**Slide #5**

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As an initial position, NASA will be required to develop a statement of work in which it defines what it wants – not how to do it and not exactly what process should be used to create an object or to deliver a service. NASA will define what it wants many times in terms of performance and how it will measure the object's worth, value, or "goodness" – whatever metric will assess the quality of the contractor's output. **NASA will also require additional insight and creativity in determining an appropriate contract type and incentive structure. In the past, many of the incentives used in cost-type contracts focused on rewarding efforts that completed the job early or reduced the cost of the delivered item. The preferred method has been providing immediate financial incentives, such as sharing the savings or perhaps giving a financial reward for completion before the scheduled time.** **Unfortunately, other R&D-type cost contract incentives have relied on a subjective rating of performance administered by the technical monitors and cost administrators. These are very difficult to administer, often requiring a senior review panel for approval. The performance award can often be separated by as much as a year from when the actual performance has taken place. Even in simpler performance award concepts, there is a tendency to reinforce some behaviors that are not necessarily in the best interest of the Government. If schedule performance is the key metric for incentive award, contractors may be tempted to pad schedules so that they will, if nothing major goes wrong, finish early. Cost estimation can suffer from the same problem.**	**Slide #5 (concluded)** **Note: Emphasize that this objectively based performance is an essential key to making performance-based contracting work.**

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PERFORMANCE-BASED CONTRACTING INSIGHTS (CONCLUDED) **If the contractor submits an overpriced estimate of what it will cost to perform this job, and the Government is unable to independently determine what it really would cost to do this job, the apparent observation of cost savings may be illusory. Retail sales of furniture are replete with examples of how pricing is established. The furniture market standard markup on most furniture is between 300 and 500 percent. When the furniture salesman says that he will sell this furniture to you at half price, his is still receiving 250 percent markup on the original item. Similar situations may be found, although not as blatant as this, within the NASA space industry. The bottom line for performance-based contracting is that the contractor will be paid for objectively measured performance.** **NASA's intent in fielding this policy is to remove Government employees from the business of doing what is now seen as contractor work. It gives the Government more of a hands-off monitoring and insight approach to procuring many of the services and hardware items. In the past, the product frequently was the result of a Government team leading or being directly participative in its hired contractor force during all stages of the contract performance process. That way of conducting business is to be eliminated, with NASA Project Managers and team members in the future focusing on monitoring for insight.**	**Slide #6**

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As a result of this change, the Government anticipates saving money. Although most of the savings will result from a downsizing or rightsizing adjustment of the workforce, addtional savings can be anticipated from improving the efficiency of the contractor activities without intrusive monitoring. **A key tenet of this new policy is that the contractor will be entrusted to meet the Government's requirements with the responsibility and the authority to decide how it will meet the Government's needs. The Government will take a less directive role in describing how things will be done and work more as a cooperative collaborative team member with the industry members to accomplish that goal. However, there may be some difficulty in balancing this devolution of authority and empowerment to conduct operations that have been previously reserved for a Government agency.** **The difficulty in balancing may come from prescriptive and legal binders that are currently existing in the federal acquisition regulation, military standards, and existing policies and procedures within the NASA hierarchy to direct specific inherently hazardous activities. Substantive questions indicate that NASA may not necessarily be able to avoid liability for contractor deficiencies in safety or operations matters. When NASA has contracted for specific services and products, if there is failure or nonperformance, who becomes responsible? Does the Government have partial liability because the contractor is executing under a Government contract element? If the contractor is performing at a Government-owned facility, then who then has liability? Nonetheless, NASA is rolling back its structure, will be less intrusive, and will be more of a bystander that observes the activities of the contractors as they deliver the goods and services that the Government requests.**	**Slide #6 (concluded)**

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PBC ESSENTIAL ELEMENTS **The intent of this slide is to identify to the student the elements of a PBC that are important in developing a Project Surveillance Plan. Students should understand the elements of performance-based contracting so that when they create the Project Surveillance Plan, they know where they can find the hard requirements and specific performances required by the contract.** **The first part, and the most important part of the PBC, is the statement of work. The statement of work clearly describes what the Government wants and lays out the system performance requirements in quantitative or qualitative terms. Under PBC, the Government expresses its willingness to accept the contractor solution as long as it meets performance requirements. Unless absolutely necessary, due to safety, legal, or other formal types of requirements, the Government will not tell the contractor how to make the performance happen. For the surveillance plan developer, the statement of work is the primary source of the hard performance requirements and potential thresholds for metric-measured performance. It should be used as an initial position and as a guideline for examining the Project Surveillance Plan, particularly in the metric section. When attempting to measure how well the project is advancing, it is necessary to know where the project is going. The SOW shows where the project is going and what the key requirements are. The developer should determine how these requirements should fit into a monitoring project, selectively choosing those areas that require monitoring, measurement, or special activities from the Government's point of view to assure that the statement of work requirements are being met.**	**Slide #7**

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Similarly, much of the performance monitoring will be focused on assuring the completion or satisfaction of deliverable items. Deliverable items are routinely specified in a contract data requirements list (CDRL) and may include data items from the contractor, hardware items, or perhaps just data. As a project office in NASA develops its Project Surveillance Plan, key activities may include those that provide assurance that progress is being made in advancing towards the completion of deliverables. If possible, metrics should reflect progress against actual items rather than just against schedules of events. The PSP will ensure that the needs of the Government are being satisfied, but the deliverable list will describe exactly what needs must be satisfied.	**Slide #7 (concluded)**
PBC ESSENTIAL ELEMENTS (CONCLUDED) **Two essential elements of the PBC concept are incentives and the evaluation and incentive award process. Performance-based contracting uses incentive structures in which it rewards the contractor for meeting specific goals.** **Traditionally, incentives have been based on either schedule performance or cost avoidance. The Government will probably be looking to newer, non-financial means to incentivize the contractor. NASA could offer contractors exclusive rights to emerging technologies, allowing the contractor to keep proprietary rights or hold products that they have developed under contract. Additionally, NASA might consider no rent (no tax) use of Government properties in high-cost areas; transfer of research and development property; no-cost, private use of launch facilities; and other unique incentives to facilitate good performance.**	**Slide #8**

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As a matter of practice, elements of the surveillance plan may become a part of the performance evaluation in the incentive award process, depending on the Project Manager. If the Project Manager plans for the surveillance process to include monitoring for incentive award, then the PSP will identify incentive award supporting activities and metrics embedded and woven into the Project Surveillance Plan. Frequent, periodic incentive awards based on completion of well-defined tasks or deliverable items seem to work well within this structure. A task, deliverables, and clear performance goals should be defined early in the project, and performance should be evaluated as soon as possible or at predetermined milestones in the development process. The contractor should be incentivized and rewarded for work well done as it happens.	Slide #8 (concluded)
TYPES OF PBC OPTIONS Firm fixed price (FFP) and fixed price with economic price adjustments (FP/EPA) are frequently the lowest risk contracts to the Government. The incentive for the contractor is implictly built in with the proposed price. The contractor assumes the risk. Generally, if the price of the product or the commodity being sold is stable and if the contractor estimated accurately, enough fee will be built into the cost structure to assure that the contractor does not lose money and, in fact, makes economic return on his money. The Government's risk is very low because the contractor is responsible for delivery at a fixed price. The primary risk to the Government is that of non-performance. Should	Slide #9 Note: This is an "eye chart" with a large amount of detail and high content. Stress to the students that there are numerous forms of contracts, each with the ability or inability to work within the realm of PBC. The PSP must be tailored to meet the type of contract and overall project objectives.

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the Government push the contractor to accept a margin that is too risky, then the contractor may lose its ability to perform, declare bankruptcy, and cause the contract to be null and void as a result. **Generally, there are no explicit performance incentives on the firm fixed price type of contract. In some cases, the Government offers a provision for economic price adjustment in which the Government agrees to pay a higher cost should external economic factors drive the source materials beyond a certain range. This often requires the contractor to similarly share "excess profits" with the Government should these same factors drop below a certain threshold. If the contractor is able to deliver at a lower cost than was originally projected, then the Government will share in the cost underrun with the contractor.** **The most common type of contract that provides for the use of performance-based incentives is in the cost reimbursable area: cost plus incentive fee, cost plus award fee, and cost plus fixed fee. Those contracts are generally reserved for times when there is uncertainty about the product or the process used to create the product. There is technical risk for the contractor to enter into a contract, and the Government is willing to share in the risk to some degree by allowing the contractor to recoup reasonable costs incurred in delivering the product the Government wants. The Government incurs increased risk over fixed price contracts, and the contractor reduces his risk substantially. The Government assures that it will at least pay for the reasonable costs of creating and delivering the product. The contractor's profit is then computed using a pre-specified award fee or incentive fee structure, based on the performance in delivering the product.**	**Slide #9 (continued)**

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An easy (but not necessarily effective) way to evaluate performance for this type of contract is to compare projected costs versus actual costs. Award fee scales based on resource consumption will incentivize for underrun and in some cases penalize (against base profit) for imprudent overrun. Sometimes, the award fee will include multi-factor types of evaluations. Some types require the Government to appraise the work performance, management, schedule, and cost of performance of the contractor while administering and delivering the product. This process tends to be expensive to administer and frequently has drawbacks related to time delay between performance and reward. **The use of a share line type of incentive for the CPAF contact is gaining wider support. This method requires establishing objective cost, project schedule, and product performance schedules prior to start of work. An accurate means of measuring accomplishment of objectives and well-defined SOW criteria are a must for this share line process to work.** **The cost plus fixed fee contract is beneficial to the contractor. It guarantees a set fee for whatever hours are delivered. There is no negotiation, and the contractor has a set fee schedule. All the contractor has to do is deliver the product or services that the Government requests.**	**Slide #9 (concluded)**

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TYPES OF PBC OPTIONS (CONCLUDED) **Indefinite delivery type of contracts, time and materiel contracts, and labor hour contracts are all generally non-incentive-based projects. The contractor figures into its offer the amount of fee or profit it will receive for delivering a certain product. Particularly in the indefinite quantity, indefinite delivery type of items, the contractor incurs a considerable amount of risk because these contracts do not require the Government to buy more than just a nominal, very minimal amount of the product on contract. This type of contract is frequently found in the purchase of general commodities such as fuels, office supplies, and computer equipment. The Government in effect states to the contractor, "You will be a source when we need to buy these things; we will guarantee that we will buy at least this much, but there is no guarantee beyond that."** **The fact that incentives are not generally encountered in this type of contract does not mean that they could not be implemented. Good performance, exceptional service support, and timely delivery could be incentivized if the Government would establish a spot-award incentive pool. Each item purchased could have a small set aside amount (2 to 4 percent) that when pooled could provide a source of incentive award. By completion of a customer satisfaction card, the purchaser would directly determine how much of this pool was awarded to the contractor.**	**Slide #10** **Note: This slide concludes the types of performance-based contracting options by summarizing the remaining common types of contracts in which students may become involved, either in NASA or within the contracting community.**

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Time and material (T&M) and labor hour contracts currently do not offer an opportunity for incentives. Depending on the nature of the service being provided, T&M and labor contracts may range from "temp" day labor to the traditional full-time contractor "marching army." Labor services are provided at fixed rate and pre-determined fee allowance. Material purchases in T&M are directly supportive of the Government function but require the contractor to comply with Government purchasing rules. Like the indefinite quantity type contracts, the T&M and labor hour contracts could be incentivized using a similar set-aside pool and frequent award by the direct user of the product based on performance.	**Slide #10 (concluded)**
SHIFT IN PROJECT PERFORMANCE SURVEILLANCE PHILOSOPHY **NASA is changing the the way it does business across a broad spectrum of activities. This change is most dramatic in the area of project surveillance for performance-based contracts being let. The shift has been from intensive oversight of all contractor activities to that of insight in which the Project Office is more an interested consumer, but not necessarily the overseer of the work. Thus, the contractor will assume an increased level of responsibility and accountability for the integrative processes, products, and all aspects of performance.**	**Slide #11** **Note: The main point to emphasize is that there is a dramatic change underway within NASA in the way that business is done.**

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A quote here from the director states, "PBC is a way of getting back to basics doing acquisition in the way that the laws, regulations, and policy already state that we can do that." This requires that NASA structure its internal processes to assure that when the Agency purchases items or services, it will have the intent to evaluate the contractor's performance. Evaluation will require NASA Project Managers to objectively examine the contractor's performance, measure that performance using agreed-upon metrics, and if it complies, provide performance incentives. Incentivization to the contractors will come in many ways. The clearest method is direct financial reward for specific levels of performance explicitly determined by NASA evaluation. **In part, the new direction allows and encourages inprovement in quality. A visionary in the field of quality, Philip Crosby, identified the precept that quality does not cost, it pays. Trying to capture the cost of quality is often difficult to accomplish; however, some examples from private industry are instructive. Most automobile manufacturers warrantee their products for a limited period of time, a feature now emerging in NASA efforts. During the warantee period, the seller provides the consumer an assurance that the item sold is without substantive fault and that if faults due to producer error occur, the producer will correct the situation. One might imagine that many faults would result in a sizable penalty to the producer that rapidly offsets the profit being made. Ford learned this lesson the hard way, almost losing the company in the late 1970s and early 1980s.**	**Slide #11 (continued)**

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When Ford Motor Company finally decided that "quality was job one," their failure rates were in the neighborhood of 17 defects per automobile delivered, and the cost of warrantee service had become prohibitively expensive. Ford is now down to 0.3 defect items per delivered product, a two orders of magnitude drop in a short eight years. Needless to say, the cost of warranty service has decreased dramatically, and Ford is the second most profitable automaker in the world. As can be imagined, Ford originally would have had to build-in a fairly significant cushion to correct the warrantee problems. By building higher quality products with fewer defects, Ford has virtually eliminated the need to build in a cushion for warrantee services. Warrantee services on new Fords are now nearly unheard of in comparison to the Fords of the early 1980s. In those days, Ford was often derided as "Found on Road Dead" or "Fix or Repair Daily." Ford's new concept has allowed the ongoing revolution in high quality at fair prices. **NASA is moving towards that same form of implementation of personal responsibility and non-intrusive insight monitoring, allowing the contractor to take responsibility for the delivery of a performing product. In PBC, "getting back to basics" is important. This concept is about rewarding contractors for doing a good job and doing it on their own. Most purchasers of everyday products do not anticipate having to oversee every step of the repair or manufacturing process. Similarly, NASA has begun to find limited benefit to overseeing every step of the creation, repair, and operation processes within areas of its purview.**	**Slide #11 (concluded)**

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PLANS FOR PBC IMPLEMENTATION **NASA has begun to establish an environment in which the contractor delivers the products, goods, or services and NASA provides insight monitoring to assure that the product being delivered is what was ordered. The shift is made manifest in the Project Surveillance Plan and implemented in the surveillance program. One of the first surveilance plans to employ this approach is the ongoing Tracking and Data Relay Satellite (TDRS) effort in which NASA has awarded a firm fixed price completion contract. Hughes has agreed to warrantee the product's performance on station and during the launch phase. The required surveillance on this project is comparatively minimal, focusing on the insight mechanisms of limited metrics and focused activities.** **Since the fall of 1995, NASA has been undergoing an agency-wide PBC awareness and training program in which traveling teams from headquarters have visited each of the centers and provided education and training in PBC concepts. By using model PBC programs such as TDRS and the upcoming Millennia projects, NASA is building an experience base for future efforts. By using an evolutionary process in which an experience base is built initially, bugs are worked out and PBC gradually becomes a way of doing business within core business sectors. Not all contracts can be performed with performance-based contracting or with an incentivization program. Tailoring of the project-specific approach falls heavily on the shoulders of the Project Manager.**	**Slide #12**

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Other factors may cause the PBC initiative to be put into place more rapidly than currently anticipated. By necessity of sharply constrained budgets, NASA may move toward performance-based contracting across the board in many of its new projects. Due to dramatic staff cutbacks, NASA may simply not have the people available to perform traditional oversight types of functions on some work. They must trust the contractor to perform what they have asked it to do. NASA will have to develop innovative surveillance methods and embed them in the Project Surveillance Plans. Changes in current surveillance strategies will be needed to allow NASA employees to monitor the project and its progress and to control any sense of unease about its performance. **NASA is clearly beginning to move into new ways of doing business. Particularly exciting is the Advanced Quality Systems initiative in which innovative ways of development, teaming, and long-term partnerships with industry are being brought forward for consideration. These new ideas coming out of industry describe the means to be successful in this "lean and mean" environment, how to obtain continuously effective performance, and how to incentivize efficiently. Industry is currently working to develop a common set of metrics for project management and systems engineering for aerospace firms. These metrics should be available within the next year and possibly implemented into some of the ISO standards for quality engineering or quality processes. Overall, NASA is moving along smartly and is preparing to implement PBC as a way of doing business.**	**Slide #12 (concluded)**

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PROJECT SURVEILLANCE PLAN INTRODUCTION **The Project Surveillance Plan is directly linked to the performance-based contracting concept, which is an essential part of its successful prosecution. Even though NASA's current base of incentive-based contracts is limited, the requirement to use performance-based contracts in the future indicates that project-specific "insight" surveillance plans will become the norm rather than the exception. Objective criteria embedded in the contract statement of work indicate that contract performance will be required to be measured in novel ways. Criteria will be developed for evaluation of work performance and the quality of products NASA receives. The Project Surveillance Plan becomes an implementing instruction for performance assurance monitoring of contractor's efforts. The plan describes the program and the processes that will be used. The plan is itself not the program, but rather it is the identification of methods from which the Project Manager can communicate to all people involved in his project how they will do business and what he expects to be done in terms of this business. It is his way of communicating his intent to all of those involved in his business.** **The OFPP policy letter 912 on quality assurance (with NASA as a prime signator) addresses these performance standards and surveillance plans. It states that NASA will use these processes and products whether there is a formal requirement or not. NASA has stated that it will create both performance standards and a surveillance plan to monitor the attainments of those specific project standards.**	**Slide #13** **Note: The concepts of performance-based contracting have been examined and insights have been gained regarding the future of PBC. This PBC environment provides the foundation for the Project Surveillance Plan. This slide begins to link the two areas.**

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Simply, the Project Surveillance Plan is required by directive guidance. It makes good sense to use a plan like this to run surveillance on any major project. It provides project continuity and creates the means to communicate project intent clearly to all involved.	**Slide #13 (concluded)**
PROJECT SURVEILLANCE PLAN INTRODUCTION (CONCLUDED) **The purpose of the PSP is to create a unified strategy for the project in order to execute surveillance and to communicate it to all parties involved in the project. That strategy may have different components and may include concepts such as risk mitigation, use of metrics, use of teams, time-phased scope, use of control limits, and organizational relations and responsiblities. It will describe very explicitly the Project Manager's overall strategy to execute a surveillance program. The plan identifies activities, specifies metrics, and identifies the resources needed to conduct this surveillance program. It is important to the success of the program because it formalizes commitments among the signatories to follow this process, to commit to the use of resources, and to accomplish what is stated in the plan.** **The plan is a statement of intent. It is dynamic, living, and changeable as the needs of the project change. Because it does lay out an organization and describe the processes, it should also assign responsibilities to the surveillance team. One of the major findings of the Advanced Quality Systems initiative is the importance of teaming. Almost all successful major industry innovations in the past decade, particularly in the automobile industry and the aerospace industry, have been a result of this team concept.**	**Slide #14** **Note: At the completion of this slide, leave it on the screen so it can be used as an introduction to the next segment of instruction. As the class comes back in for the second hour of instruction, remind them of the basic parts of the surveillance plan (that is, the introduction, the project goals, the NASA directives and procedures that might be overbearing on that, surveillance strategy and technical approach, specific activities, metrics, and control limits, and organization from that point of view). This structure will be reviewed in some detail over the next period to make sure students understand each one of these elements.**

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SURVEILLANCE PLAN STRUCTURE **The surveillance plan structure is very much like other plans already seen. It includes an introduction, a discussion of the background, and then an introduction to the specifics of the project. The introduction provides basic background discussion material for traceability to overall project objectives. It allows those executing the project to clearly understand the genesis of the project and the overall NASA approach to executing this contract. The surveillance program objective identifies the purpose of surveillance in this project. This sets the stage for developing a strategy and a technical approach to executing the strategy. The plan articulates the surveillance strategy, describes the specific activities and approaches to be employed, and ties those items in to the overall project schedule.** **The plan also identifies specific metrics that will be used in the project and specifies in a constructive manner how they will be used in surveillance and project management. Identification of metrics, which will be covered later, and tends to be a somewhat contentious issue. Current NASA policy requires use of a core set of project metrics focused on societal goals, budget tracking, and milestone schedules, but not at all on project accomplishment. Later discussion will concern using pareto analysis to focus attention on identifying, resolving, and tracking known problem areas with easy-to- grasp metrics. Selecting proactive metrics will also be discussed.**	**Slide #15** **<u>Note</u>: Break here for 10 minutes.** **The training should have taken approximately 50 minutes to this point.**

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The concept of control limits for metrics is fairly straightforward. The minimum threshold of acceptable performance is determined in advance, and the contractor's ability to maintain that level is monitored. When performance is outside the control limits, surveillance and perhaps management activity should be increased to resolve issues and return to acceptable limits. **The final part in this plan structure is that of project surveillance organization and the resources that are required. As the plan is constructed, as much precision and detail as possible should be included to specify who exactly is involved and what their level of involvement and authority is. It is as important to also document the project management commitment of specific resources to accomplish the job. The plan allows the Project Manager to receive concurrence of all of the major participants, particularly that of the contractor. This document succinctly specifies NASA's plan for how it will be conducting surveillance of the contractor, how it will be integrated with the performance-based contracting incentives, how NASA will be grading and scoring performance, and what elements will be tracked to assure the performance is achieved.**	**Slide #15 (concluded)**

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
PROJECT SURVEILLANCE PLAN INTRODUCTION **The introductory part of this module provides project-specific background information for the casual observer or a new person just joining the NASA organization. It is essential information for everyone who is writing the plan and provides a common background for reference. If done well, it assists any student in understanding the contracting vehicles, it helps them understand the environment for execution, it introduces them to what the contractor has proposed to do, and it provides them a good, solid insight into the overall project from the top to the bottom. The summary of information gives them sufficient background so they can make initial judgments that may be helpful in defining their surveillance strategy. It should give them some insight into how NASA has tackled these types of projects before and what has and has not worked previously.** **In order to write the section called "Background," the team must understand the agency's prior experience. Questions such as the following must be asked and answered:** • **Was the prior experience sucessessful?** • **What worked?** • **Which contractor was involved?** • **Was a specific contracting team involved?** • **How did NASA approach the overall effort?** • **How might NASA and the contractor have done it better?**	**Slide #16**

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
The specific needs of the project must be called out in the background to assure a common understanding of performance goals, performance objectives, and the overall NASA intent for this project. **The realm of investigation should not stop at direct-lineage prior efforts. One might find other related contracting efforts that can provide insight and experiential guidance. Another project may be very similar to the current project or have used the same contractor or contracting officer team. Anything that provides some sort of relational source of "lessons learned" and insight into prior experience or a current ongoing experience can be exploited and used to the benefit of the project.** **This introductory section also serves to introduce details of highly technical issues that have significant bearing on the outcome of the project. It is critical that all of the requirements of the RFP and the statement of work that necessitate any form of surveillance be identified here for further development. It may be a good idea to include the statement of work as an appendix to assure it is readily available. The introduction should summarize some of the contract features and call out the contract mechanism and incentive structures that have been included. The introduction must at least give an overview of the top-level project schedule. Third- and fourth-level WBS items are not necessarily included, but first- and second-level WBS major activities should be captured on this schedule to demonstrate how the surveillance plan will fit together. At this point, it is necessary to consider only the contractor's overall project without surveillance program elements.**	**Slide #16 (continued)**

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
After establishing the project introduction, the authors should succinctly identify and summarize any specific NASA binding regulations or guidance that should be considered in crafting the surveillance program. This input may vary considerably in formality and enforceability. It may be a policy letter, a directive, a regulation, or a handbook. In any event, these forms of documents provide the framework of the surveillance strategy.	Slide #16 (concluded)
ESTABLISHING A SURVEILLANCE STRATEGY Establishing a surveillance strategy is the single most important element in creating a surveillance plan. Given the project objectives from the statement of work, planners must make essential decisions to identify an overarching strategy and course of action to define the surveillance program. This slide shows that the strategy may include multiple branches to support the overall goals of the project. Strategy must articulate in general, yet actionable terms the outcome and essential process elements that will be pursued to achieve the goals of the project. The strategy leads to the development of more detailed planning that defines the specific approach to the problem, identifies a methodology, defines activities, and if needed, specifies the means to measure and assess success. Ideally, in the process of "flowing down" a strategy, all surveillance activities remain focused on meeting project goals using the guidance articulated in the strategy. Without a clear statement of strategy, it is often easy to lose track of the overall plan for meeting surveillance needs.	Slide #17

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
ESTABLISHING A SURVEILLANCE STRATEGY (CONTINUED) **Forming a strategy is complex and requires complete research and in-depth understanding of the technical, organizational, fiscal, and political environment of the project. Completion of the background work was stipulated in order to come to a complete and solid understanding of the project. The strategy then reflects the planning team's understanding of what is truly important for successful completion of the project's objectives.** **To get to that point, one must consider the type of work that is being performed. Surveillance strategies will be different if the contract calls for maintaining a building as opposed to putting a satellite into space. It is also probable that a novel research project will be managed with a different surveillance strategy than an ongoing, routine technical operation that has a long track record. Type of work drives much of the strategy because it provides the first indications of what is important in formulating the strategy.** **The type of contract that has been awarded for this task provides some clues on specific elements of the strategy that can be helpful. Specific contractual forms require specific internal surveillance actions of the contractor; others require the surveillance to come from the Government. Regardless of the form of contract that is chosen, the intent of surveillance strategy is to provide the Government assurance that the contractor is performing in a manner that will allow successful satisfaction**	**Slide #18** **Note: The instructor should convey to the students that creating a strategy must weigh a multitude of factors and many complex conditions. Some generic strategies may work well in multiple situations; the strategy should be tailored to meet the specific needs of the project.**

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
of the contract. As purchasers, the agency will need a sense of confident ownership and possession as well as some assurance that the contractor is performing in ways compliant to national standards of safety, environmental protection, and fair business practices. **The contractor's past performance is also a critical element for the project team to examine. If the contractor has a well-established ISO 9000 process in place, has been certified as a data provider, and has a record of success with the agency or DOD, then the higher level of implicit trust is already in place. The structure of the surveillance program will be obviously different if there is a low level of trust, the contractor is new to Government contracting, or some sort of new risk element has been introduced.** **If new features, processes, or technology are being incorporated into the products and services, the team should look carefully at the project risk. Risk management may become a key strategy when the possibility of failure leads to the loss of human life or property or is a major milestone or major element of NASA's success strategy.** **Perhaps the most critical element of the project surveillance strategy will be that of available resources. If not enough money is available to put an intensive surveillance structure in place with an extensive staff to monitor the project, alternatives must be**	**Slide #18 (continued)**

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
found. NASA in the past has conducted sureveillance as an in-depth, tightly monitored, close-in process in a very collaborative type of environment. If the money is not available and people are not available, then it will be exceedingly difficult to establish this process. The ability to execute "insight" monitoring and an agency-wide strategy indicates that the process appears to be driven most by available resources.	**(Slide #18 (concluded)**
ESTABLISHING A SURVEILLANCE STRATEGY (CONCLUDED) **This slide offers definitions of the terms insight and oversight. It is very clear in the emerging NASA policy letters and briefings that insight is the direction towards which NASA is evolving. Oversight surveillance in many cases is disappearing, which is proper given the strategic direction laid out by the director. It should be expected that a future "mandatory" strategy for any new project start would be to** *implement insight surveillance.* **This will likely become codified into a set of common activities, common metrics, and fixed directives that describe the processes of insight surveillance.** **However, a complementary strategy may be that of focused risk management. If a project contains potential problem areas or high risk elements, then this strategy mandates that activities and surveillance be focused in much the same way as the majority of available resources are focused on managing risk areas. Out-of-control risk management processes often lead to cost explosions, schedule instability, and missed deadlines. Identifying risk areas and rank ordering them are important elements in a risk focus strategy. The team must decide which one is the greatest risk, where that risk is, and what might be able to mitigate the risk as a part of the strategy.**	**Slide #19**

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The other element is routine project health monitoring, which is focused on making sure that the work is getting done, that laws are not being broken, that the work force involved is happy, and that the products being purchased are being delivered on time and with the specified performance. This monitoring will many times involve some of the traditional measures related to a standard health maintenance type project: cost, schedule, deliverable items, and execution of a few key audit items to provide insight to the Project Manager.	**Slide #19 (concluded)**
SPECIFYING SURVEILLANCE ACTIVITIES **The surveillance activities complement the overall strategy, consider and integrate formal regulatory guidance, and fit within a specific period's project schedule. This requires the planning team to define activities as part of the surveillance program including audits, inspections, surveys, and independent verification and validation (IV&V). In most planning, there seems to be a tendency towards doing things in the same way they have always been done before. This paradigm must be broken to select only those activities that will provide value in terms of providing quality insight. Instead of weekly audits, monthly audits of a smaller scope may be all that can be afforded. Choosing the right things to do will be the hallmark of the successful plan. The first of three main categories of surveillance activities is shown here.**	**Slide #20**

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
The first activity is communications. Communications is a general surveillance activity. It is intended to build rapport with the customer (that is, between the contractor and NASA). Everyone must be on congenial terms so that they can quickly handle crises and issues as they arise. Hints to executing this relationship are shown on this slide. **Formal reporting as a primary means of communication is often wasteful because it involves expensive people writing long reports that are frequently unused and quickly filed away. Development of processes will be important in specifying these activities.**	**Slide #20 (concluded)**
SURVEILLANCE ACTIVITIES (CONCLUDED) **The other traditional areas of surveillance activities include product verification and assurance reviews. Both result in similar outcomes (that is, a comfort level that the customer is receiving or has received the products and services required by contract).** **Product verification assures that the product is indeed performing as promised. Activities such as testing, functional/physical configuration audit (FCA/PCA), and independent verification and validation (IV&V) provide high payoff as long as they are constrained and well within a certain limitable horizon.**	**Slide #21**

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
Assurance reviews provide NASA with insight and confidence that the project is being developed properly and being executed in a way that appears to ensure success. It is important that NASA representatives participate in all significant preparatory assurance reviews. A daily assurance review is not necessary, but when a review is held, a full complement of NASA subject matter experts in a team configuration should be available to review the overall status and process. From there, NASA can provide feedback to the developing contractor almost immediately without the situation getting out of control, and corrections can be made on the spot. Assurance reviews tend to be a key activity early in the developmental process and just prior to operational or developmental transitions (pre-launch, pre-assembly, pre-test, etc.). This form of insight monitoring provides a high payoff with comparatively low levels of investment.	**Slide #21 (concluded)**
IDENTIFYING SURVEILLANCE METRICS **The process of identifying surveillance metrics is probably the most difficult process in developing the Project Surveillance Plan. It is not easy or simple, and it requires hard thought from the point of view of the Project Manager and the staff who create the plan. However, there are some guidelines to assist in the process.** **The selection of metrics should reflect to any Project Manager the status of the project and/or the progress of the contractor in accomplishing key outcomes. In other words, one key outcome would be how well the contractor is progressing towards delivering this product at the cost and on the schedule requested. Metrics will be selected that will reflect the total progress with respect to the assets.**	**Slide #22**

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
It will be important to monitor those metrics to determine if any excessive trending exists or if particular lags have resulted in unexpected additional costs or unexpected additional slippage in schedule. These events may have occurred due to requirements for unprojected technological resources or perhaps even constraint of labor or material resources. Metrics must be objective. They must provide quantitative measures of what is occurring. They must specifically determine what is being examined and provide an ability to measure objectively the performance of the project. **Better metric systems use an activity-based accounting process. Few Government organizations currently have this system in place, but it is a key element in defining metrics that can be associated with specific activities. There is no better way to evaluate specific factors such as efficiency than to examine inputs and assess what was achieved for an output.** **Potential data sources are numerous. Recall that during the formation of the initial statement of work in performance-based contracting, specific requirements for performance were described. These requirements are some of the first metrics to be examined and should be included without question. Attainment of performance objectives should be measured for the product or the services being requested. The Contract Data Requirements List (CDRL) must be very specific on what type of data will be requested from the contractor. Be careful not to ask for too much information that may not be useful. In many cases, a wealth of information may already be available in the contractor's management information system. Many contractors are still collecting enormous amounts of data that may be important for the individual element or the individual function. At the top level, the insight level, one should be very circumspect and choose a few key leading indicators as well as a few key leading metrics to provide insight.**	**Slide #22 (continued)**

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
The surveillance organization may also provide data by inspections and audits as well as by examination of payment schedules and incentive awards that are provided. Some of those metrics can provide overall project health and status. Additionally, do not overlook the possibility that NASA has a collection of information from prior projects that can be tapped. Some of those metrics can be used for comparison in a macro sense to determine how well the contractor is progressing towards the project goals. Norm Augustine, CEO of Lockheed Martin, has some very insightful observations that are very good rules of thumb, called Augustine's Laws. Some of those laws and those metrics are very helpful for understanding your project. **Attention should be paid to comparative data if the ongoing project is a repetition or continuation of an older, proven project. You should see learning curve improvement; you should see the effects of this performance-based contracting environment in these metrics that reflect the improvement of the processes. If you do not see those types of improvement, then you should take a very questioning attitude and examine the processes and procedures that are ongoing within the contractor's organization. You may be surfacing some significant risk that had not been anticipated and that should be resolved fairly quickly.** **Additionally, never overlook the possibility of externally provided benchmarks. Those metrics might be useful for comparison, particularly when you are monitoring the contractor. You will want to see if the contractor is at least as good as its peers, particularly when you have to provide performance comparisons in your incentive project. The prior performance of other contractors in a similar industry can give you an idea of the range of outcome or performance that you should be seeking from your contractor.**	**Slide #22 (concluded)**

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
SAMPLE SURVEILLANCE METRICS **This slide presents two columns of very generic types of metrics that may or may not be sufficient for a specific project's purposes. Metrics should provide the means to evaluate contractor effectiveness, efficiency, progress, and actual performance against specific requirements.** **To monitor general project health, in your selection of project performance metrics you should consider labor effectiveness, amount of product delivered, or per item cost. You will want to examine the product quality and determine error rates or reject rates. You may want to examine your critical path events and see how far you have slipped events or examine the addition of new items to the critical path. Critical path and schedule review may provide insights into how well the contractor is able to estimate the work. If the product quality is on track and the cost is on track, the contractor may have simply overestimated the ability to perform the work in a certain amount of time. Provide plenty of leniency and leverage for that circumstance, but keep a close eye on this area. If you find cost escalating with quality diminishing at the same time, you have seen critical path slippage.**	**Slide #23**

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
Class I Government-initiated Engineering Change Proposals (ECPs) also provide a good leading indicator for future project problems. If the Government was uncertain of its initial design or its requirements or decided to change its design or requirements, then the appearance of ECP contract changes indicates potential problems with project health. The surveillance program should track these issues closely because they will have a direct bearing on the future contract performance. When performance starts changing, it is very difficult to keep a stable set of metrics to measure that performance. If you keep changing the reference scale for the performance of work, it will be very difficult to obtain a good calibration and understanding of what is truly happening. **A new metric area is called "cost of quality." This area requires activity-based accounting processes to be in place. The metric represents the cost to execute quality enhancing programs such as training, education, monitoring, total quality management (TQM), and program statistical processes. As an example, one might surmise that adding statistical process control as a process added an extra 15 hours a week in man labor, but as a result saved 30 percent on rework costs. This cost of quality metric is well documented in numerous books by Crosby and others. The Jet Propulsion Lab is particularly interested in using this metric, and it is worthwhile for many other project teams to consider its usage. It has potential for widespread impact in helping decision makers determine how well training is paying off. It helps to sell the infusion of quality programs particularly in a performance-based contracting environment.**	**Slide #23 (continued)**

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
The other column on this chart discusses specific issue-related metrics. They will be selected based on known insights of the members of the project management staff, particularly the people in the product reliability and quality assurance directorate. **In each case, when you do specify metrics, have in mind exactly what it is you are trying to gain from this information. If you have just a vague feeling that this might be important, then take a very close look at the issue to determine if it is part of the critical processes and critical chains of events. If it is not, then it is probably not worth tracking the metric. More than likely, the contractor will keep the metric and maintain that information; you would only be replicating the storage of that information.**	**Slide #23 (concluded)**
IDENTIFYING SURVEILLANCE METRICS **The most effective displays of information are simple and intuitive. Very complicated displays with many axes, criss-crossing lines, multi-colored bars, and wordy legends seldom convey the point. Metrics displayed at the project management level should be clear, intuitive, and clearly expressive. If you are presenting information to display a trend, then it should show trend lines. If you are looking for current level of accomplishment, then "thermometer" bar charts are quite effective. If there are specific limits for the performance or level of achievement, they should be illustrated.** **The concept of management controls for project metrics is critical to effective management. Many processes have upper and lower levels of tolerance, others have acceptable growth rates, and yet others have minimum performance threshholds. The concept of management control limits allows management by exception. When a metric comes "close to" or exceeds its limit, an alarm goes off. Statistical analysis can provide additional insights into how the processes are performing; high levels of variance or wide**	**Slide #24**

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
swings in performance may show an unstable process, problems with the project, or simply typical behavior of the process being monitored. Using the concept of control limits allows management the latitude to not over-react to the latest swing in the pattern, as long as the swing is within the control limits. Management can be fairly comfortable that no action is needed at this point, but attention should be paid to the pattern. **After establishing the control limits, you may also want to prescribe what management will do if control limits are broken or violated. The Project Manager will increase surveillance on the process, change the surveillance approach, and/or alert the contractor that there is concern about the potential for unacceptable performance. Performance may also be tied back in some way to the performance incentives that are being offered to the contractor. However, when money becomes involved, it may become a delicate area, but it is an area that must be addressed very clearly when you are laying out your metrics. The plan must not take only the point of view of expressing what is being measured, how it is being measured, the source of the data, and how it will be analyzed. The plan should also express what is expected as reasonable limits of performance. Control limits are not necessarily always locked in stone; they can and should be modified as experience shows proof that they should be changed.**	**Slide #24 (concluded)**

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
CREATING THE SURVEILLANCE ORGANIZATION **The surveillance program that is being assembled in this plan is executed by ordinary people doing jobs that they do every day. However, this plan must describe some of the organizational entities and assign responsibilities to these entitities. Much of this surveillance plan will be executed by people directly within the Project Manager's control. A key premise is that the surveillance program and plan belong to the Project Manager and are available to enhance management of the project.** **The plan also communicates to people outside of the direct NASA project orgnization who are providing both contractor and internal control insight monitoring. The PM should anticipate insight monitoring on the project management function from external NASA groups as they attempt to determine how well he is performing his activities. Two tiers of surveillance concurrently occur: the project management is monitoring the contractor, and upper management is monitoring the progress of the project office.** **The surveillance organization must balance the need to be rigorous with practical considerations related to resources. In addition to those shown on the slide, an engineering representative and a person skilled in data analysis and information evaluation should be part of the organization. Both could help interpret and identify trends, particularly in some of the technical issue areas. A Project Manager may also consider using dedicated resources from very specialized agencies that meet only on an occasional basis. DLA's Defense Contract Services may be able to provide additional services and the necessary inspection and formal audit processes. They have people who are very skilled in these**	**Slide #25**

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
processes and are very good at performing that specific job when there are complete technical standards against which a specific deliverable is being examined. Services may also have the same types of personnel available. Other federal agencies, as they gain more experience in performance-based contracting and in project surveillance, may provide opportunities to synergize and use some common metrics and common approaches. For example, NASA may use the same types of approaches and metrics that GSA uses for facilities management, or even "subcontract" the surveillance function to GSA for facility management. Trade associations will become particularly important with the demise of military standards. In some cases, they may provide a basis for the metrics. The trade association of aerospace manufacturers is currently developing a set of common metrics to which all aerospace manufacturers are willing to subscribe. Frequently, there are benchmarks of performance that are established within libraries, particularly quality libraries. The Air Force has a fairly extensive library of benchmarks that is available to Government agencies by request. Additionally, independent verification/ validation contractors may be involved in the surveillance program. They can provide additional technical insight as an impartial judge, monitor for software development projects, and provide additional insight based on their experience.	Slide #25 (concluded)

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
CREATING THE SURVEILLANCE ORGANIZATION (CONCLUDED) **Not only should the plan create an organization, it should also assign responsibility to the individuals who are involved. The plan should provide specific responsibilities that describe the Project Manager's expectations of those people in performing their jobs. Responsibilities should be described simply. The performance criteria should explain the expected outcomes and other defining factors, such as periodicity or timeliness. This part of the surveillance plan is the statement of work for the individual members of the surveillance organization. Some additional performance metrics may be established, not only externally for the contractor, but also internally for the manager of the project. Surveillance works two ways. To be a good business manager, you must have your own internal monitoring system as well as a system to monitor external service providers.** **Last is the highly critical issue of providing adequate resources: people, computers, time, money, and offices – the tangible items needed to complete the job and the funding required to support continuing operations. Desired activities must match the level of funding available. Some surveillance plans are quite ambitious and have identified hundreds of metrics to possibly examine and numerous weekly project status meetings to attend. The plans tend to lose credibility when they fail to provide adequate financial resources or overtask individuals. As a result, surveillance becomes "hit and miss," and the surveillance program becomes ineffectual. Maintaining a view on the critical issues becomes difficult, particularly when you are tracking hundreds of critical issues. Track tens or twenties of truly critical issues or less, if possible, to best use the available resources.**	**Slide #26**

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
Performance awards for your surveillance staff should also be considered in resource allocation. If possible, when you plan for resources, think about rewarding those people of the surveillance organization and provide some incentive for them to do exceptional work. Service incentives mean sharing across the board as a team with the contractor. If you are going to incentivize and provide the contractor a good performance incentive, you should make sure the Project Manager and his staff also have the opportunity to share in some form of incentive.	**Slide #26 (concluded)**
BUILDING THE PROJECT SURVEILLANCE PLAN **The surveillance program to be executed is only as good as the plan that precedes it. To build this plan, you must assemble your best people. If possible, you should bring the same people together who will be executing the plan with the intent of giving them the opportunity to shape their own destiny. This process builds a great sense of ownership, and it is a good business practice. It has been proven in the past that teams, when given a clear mandate, will create a superior result. This superior result occurs particularly when team members have a stake in the outcome. When individuals are dedicated to the team and its results, and their future and well being are clearly attached to the well being and the success of this program, great things happen. The Project Manager must create that integrated project team and assure each individual has the authority to buy-in and provide specific functional approval at all levels.**	**Slide #27**

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
One would expect that the team will include the Project Manager; systems engineer; safety, reliability, and mission assurance; quality assurance; contracting; and comptroller – everyone who is involved in the complete project management function. Consider including contractor personnel so that they understand your development process and thought process and become a joint stakeholder in the surveillance function. However, with a new start, you may need to first build a trust level with the contractor. A good way is to ask them to review the plan and make comments on it. Above all, remember that this is a *Project Surveillance Plan* that includes the contractor as well as your own internal organization. **As the planning team is assembled, the PM must provide them with the general strategy to pursue and the key methods to achieve success. This briefing should be in a style similar to that used by a General to communicate his strategy for prosecuting a specific campaign. When formulating the plan, the team must feel free to think in radical new ways, take different directions, and plan to use innovative concepts that take advantage of this environment of insight. Team members should learn how to retreat when there is not a vital interest or when their prior experience is based on a tautology not critical to success. Always remember that the contractor probably has a skill equal to if not superior to NASA's in managing a project. Allow the contractor to do his job. Earlier it was stated that contractors are selected on the basis of their technical and management capabilities and you should trust the contractor to do the job correctly. NASA will pay them fairly, ask them to do the job, and hold them accountable for results (performance-based contracting).**	**Slide #27 (continued)**

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
Make sure you establish hard deadlines. Teamwork and multiple party organizations sometimes have a way of dragging work on and on in search of a "better" solution. The surveillance plan should be formed up early in the project and organization's life span so that we understand very early what things are critical, why they are critical, how they are related, and how to monitor them so that we have success in our project. Senior management must accept this plan and allow the individuals of the team to have time off to create this product, review this product, and make sure it adequately reflects the interests of the organization.	**Slide #27 (concluded)**
BUILDING THE PROJECT SURVEILLANCE PLAN (CONCLUDED) **Timing is important. You should be building an initial draft surveillance plan at the same time you are writing the statement of work. As you form your basic project strategy and identify how you are going to prosecute this overall effort, surveillance of both mission-assurance related outcomes as well as PBC requirements should be built into the SOW. Identify surveillance as a key project management activity and allocate resources to assure it will be accomplished. Force opportunities for frequent intense crossfeed of information while building the plan. Include elements that you know need surveillance support, such as design engineering. Make certain that early in the development process the PSP takes on the flavor of being an integrated project in which surveillance is present.**	**Slide #28**

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
The project team should be finalizing the first release of the surveillance plan at the time of contract award and final negotiations with the contractor, but again this plan is always open for revision and change. If the plan does not meet the needs of the Project Manager, for whatever reason, then you should have a flexible plan. Preserve an option to drop back or to change the way that the project will be managed and executed. You should include flexible response as part of your surveillance plan strategy and identify how to change in the event that the project fails to materialize in the way anticipated. That fall-back position is absolutely necessary.	**Slide #28 (concluded)**
PLAN DEVELOPMENT CYCLE **If you assemble the plan properly, you will have an effective program when you execute it. It will set the tone and timbre, it will set the strategy, and it will give the people monitoring the effort the necessary guidance to execute the project. You must assure that they read it early on and that you spend time to teach them initially and on an ongoing basis.** **When developing the plan, if possible, take time to find lessons learned. Lessons learned in similar projects, both successful and unsuccessful, are excellent sources of information and can also help you avoid the pitfalls and pratfalls of those who preceded you. Lessons learned are particularly instructive in identifying critical issues that you should know as an initial position. If you cannot find these lessons learned written up and neatly filed, spend time with previous Project Managers or staff to discover what experiences they have; there is a wealth of good information that can be gleaned from these sources.**	**Slide #29**

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
The process is important. The process for improvement is a continuum of ensuring the right results are obtained from the right information. If you start feeling uncomfortable about the process, then work on making it comfortable. It can be a matter of streamlining or improving communication. Sometimes you may need more assurance of progress and institute a targeted verification effort or conduct a limited procedure or process audit. The intent in the process of improvement is to provide assurance that things are happening in the desired way according to the contractual agreement. Those activities will frequently build up the good feelings, or the bad feelings, that the project is either on track or not on track. **As you succeed in executing your surveillance plan, make sure that you share your successes with others across the agency. News that you are having great successes, using the well-designed and easy-to-execute plans developed by your superbly trained team, should be shared with others. You should share problems as well successes. As the core of experience expands, avoid using a "cookie cutter" plan. Take time to research new ideas, develop them, and share them. Other projects may be able to adapt some of your ideas for their needs. It all depends on the individual context, particularly when you form the baseline surveillance strategy.**	**Slide #29 (concluded)**

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
SUMMARY / CLOSURE **We have examined from a high level the concept of an effective surveillance plan. The plan requires its authors to consider and carefully integrate resource constraints, organizational bias, risk assumption, and the explicit need to support PBC as part of its strategy. Performance-based contracting is not an exceptional concept. It is the way NASA and the U.S. Government plan to conduct business. NASA will expect the contractor to be accountable for its products. NASA may provide an incentive of some sort to encourage exceptional quality products and timely delivery. The Government must continue to be creative in providing meaningful incentives to encourage contractors excel in their business. NASA must show potential contractors that they are a good customer, that they offer substantive potential for present and future gain, and that there are tangible and intangible benefits related to doing business with the Government.** **The Project Surveillance Plan describes a means of executing the basics in getting the job done. NASA's shift to insight clearly reflects the present times of austerity. NASA has the potential for the effective use of scarce resources, time, and people instead of watching over everything that the contractor does. NASA will have to trust the contractor. Providing metrics, watching processes, and ensuring that processes are working well over the life span of the project are essential elements of your strategy. In the plan, you should make certain that your activities and your metrics reflect your level of trust and mutual respect for the contractor.**	**Slide #30**

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
It is possible that your surveillance plan may offer claims of trust, but if your strategy requires continuous inspection and you have too many metrics, then you are probably not executing with the concept of insight-based management. **In short, as the manager of the project and the contracted effort, you do not need to know everything about everything. Information overload will result in less than effective performance in the essential elements of your management job. In closing, you should understand that building this cooperative Government-contractor liaison is crucial. Contractors hire very competent Project Managers who understand how to perform these jobs. They have been doing them for a long time. They cannot afford to perform less than superbly. The difference under PBC is that more of the responsibility is placed on the contractor to do this job. They will not be looking to NASA as frequently for guidance and direction. Performance-based contracting means risk taking on the contractor's part and on your part. NASA's role is to offer insight and provide wisdom that comes from an institutional background of doing similar type of work. Information must be shared to be successful. The Project Surveillance Plan is about sharing information and trusting. The plan exposes everyone to the messy yet critical processes so that all can offer a fair and honest evaluation of the process and ongoing progress. The Project Surveillance Plan is a device to support performance-based contracting, but most of all to support the Project Manager in executing the function of project surveillance.**	**Slide #30 (concluded)**